

some other caverns in another, and others in a third, or a fourth, or a fifth place, for so many differing substances have I found in one of these petrify'd Shells, and perhaps all these differing from the encompassing earth or stone; the means how all which varieties may be caus'd, I think, will not be difficult to conceive, to any one that has taken notice of those Shells, which are commonly found on the Sea shore: And he that shall thoroughly examine several kinds of such curiously form'd stones, will (I am very apt to think) find reason to suppose their generation or formation to be ascribable to some such accidents as I have mention'd, and not to any *Plastick virtue*: For it seems to me quite contrary to the infinite prudence of Nature, which is observable in all its works and productions, to design every thing to a determinate end, and for the attaining of that end, makes use of such ways as are (as far as the knowledge of man has yet been able to reach) altogether consonant, and most agreeable to man's reason, and of no way or means that does contradict, or is contrary to humane Ratiocination; whence it has a long time been a general observation and *maxime*, that *Nature does nothing in vain*; It seems, I say, contrary to that great Wisdom of Nature, that these prettily shap'd bodies should have all those curious Figures and contrivances (which many of them are adorn'd and contriv'd with) generated or wrought by a *Plastick virtue*, for no higher end than onely to exhibit such a form; which he that shall thoroughly consider all the circumstances of such kind of Figur'd bodies, will, I think, have great reason to believe, though, I confess, one cannot presently be able to find out what Nature's designs are. It were therefore very desirable, that a good collection of such kind of figur'd stones were collected; and as many particulars, circumstances, and informations collected with them as could be obtained, that from such a History of Observations well rang'd, examin'd and digested, the true original or production of all those kinds of stones might be perfectly and surely known; such as are *Thunder-stones*, *Lapides Stellares*, *Lapides Judaici*, and multitudes of other, whereof mention is made in *Aldrovandus Wormius*, and other Writers of Minerals.

Observ. XVIII. Of the Schematisme or Texture of Cork, and of the Cells and Pores of some other such frothy Bodies.

I Took a good clear piece of Cork, and with a Pen-knife sharpen'd as keen as a Razor, I cut a piece of it off, and thereby left the surface of it exceeding smooth, then examining it very diligently with a *Microscope*, me thought I could perceive it to appear a little porous; but I could not so plainly distinguish them, as to be sure that they were pores, much less what Figure they were of: But judging from the lightness and yielding quality of the Cork, that certainly the texture could not be so

curious,

curious, but that possibly, if I could use some further find it to be discernable with a *Microscope*, I with knife, cut off from the former smooth surface an exceeding thin slice, and placing it on a black object Plate, because of the dark body, and casting the light on it with a deep *plano-convex* lens, I could exceeding plainly perceive it to be all perforated and full of pores, like a Honey-comb, but that the pores of it were not regular, but unlike a Honey-comb in these particulars.

First, in that it had a very little solid substance, in the middle of an empty cavity that was contain'd between, as does more fully appear by the Figure A and B of the XI. *Scheme*, for the pores (as I may so call them) or partitions of those pores were of a great many little Boxes, separated out of one another by certain *Diaphragms*, as is visible by the Figure B, (which enclose and constitute the *sexangular cells*) are

Next, in that these pores, or cells, were not very large, but of a great many little Boxes, separated out of one another by certain *Diaphragms*, as is visible by the Figure B, the sight of those pores split the long-ways.

I no sooner discern'd these (which were indeed the pores I ever saw, and perhaps, that were ever seen, for any Writer or Person, that had made any mention of them) but me thought I had with the discovery of them, perceived the true and intelligible reason of all the *Phenomena* of Cork.

First, if I enquir'd why it was so exceeding light and buoyant, my *scope* could presently inform me that here was the same reason as there is found for the lightness of froth, an empty Hole in a Sponge, a Pumice-stone, or the like; namely, a very little solid body, extended into exceeding large dimensions.

Next, it seem'd nothing more difficult to give an account why Cork is a body so very unapt to suck and drink, and why it frequently preserves it self, floating on the top of Water, and never so long: and why it is able to stop and hold air, and why it be there very much condens'd and consequently press'd together to get a passage out, without suffering the least bubble to enter its substance. For, as to the first, since our *Microscope* has shown the substance of Cork is altogether fill'd with Air, and that the Air is perfectly enclosed in little Boxes or Cells distinct from one another, very plain, why neither the Water, nor any other Air, can penetrate it self into them, since there is already within them a great deal, and consequently, why the pieces of Cork become so close Nets, and stopples for Viols, or other close Vessels.

And thirdly, if we enquire why Cork has such a springing nature when compress'd? and how it comes to spring again, or seeming penetration of dimensions, so as to be as light as before, and yet suffer'd to return, is found to extend it self into the same space? Our *Microscope* will easily inform us, that

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